Amendments to the Specification

Please replace paragraph starting on line 12 of page 6 and ending on line 12 of page 7 with the following amended paragraph:

It has been shown that the solution chemistry of collodial nanoparticles can be avoided. Specifically, it has been shown that metal nanoparticles can be directly syntesized on a surface by contact of the surface to a metal salt, if that surface material serves as reducer for the said metal salt. This direct synthesis has been demonstrated only for continuous <u>single crystal</u> (non-porous) surfaces of silicon and germanium. Synthesis of nanoparticles has been shown to proceed on Si surfaces only in the presence of HF. The HF is required to remove the oxide so that electron transfer can be maintained and metal deposition can occur. (L.A. Nagahara, T. Ohmori, K. Hashimoto, and A. Fujishima, J. Vac. Sci. Technol. A **11**, 763 (1993)) Because reduction proceeds at the expense of oxidation of Si, HF is needed for the dissolution of the oxide, which otherwise hinders the electron transfer. On the other hand, the continuous (flat) Ge surfaces have been found to support electroless growth of noble metal nanoparticle using pure metal salt solutions without HF. (See L.A. Porter, H.C. Choi, A.E. Ribbe, and J.M. Buriak, Nano Lett. **2**, 1067 (2002); see also L.A. Porter, H.C. Choi, J.M. Schmeltzer, A.E. Ribbe, L.C.C. Elliott, and J.M. Buriak, Nano Lett. **2**, 1369 (2002)) This is easily understood since Ge oxide dissolves in water. (Porter et al.) However, this approach of synthesizing metal nanoparticles on a flat <u>(single crystal)</u> surface offers no control over particle size, spacing and dispersion. An alternative approach to try to solve these deficiencies has been tried. It uses the patterning of continuous metal films by electron beam lithography to form nanoparticles immobilized on a substrate with precise control of size, separation and shape.(See L. Gunarsson, E.J. Bjerneld, H. Xu, S. Petronis, B. Kasemo, and M. Käll, Appl. Phys. Lett. **78**, 802 (2001)) However, this technique involves high costs, low throughput and is limited to a minimum particle size of~10nm. Metal nanoparticles can alternatively be obtained by condensation of a metal vapor on a substrate surface in the form of islands. (See H. Seki, J. Vac. Sci. Technol. **18**, 633 (1981)) Although vapor deposition is a lower cost and higher throughput process than electron beam lithography, control of particle size and spacing is difficult.

Please replace paragraph starting on line 13 of page 8 and ending on line 30 of page 8 with the following amended paragraph:

A non-vacuum-based, non-collodial chemistry-based method of synthesizing metal nanoparticles and a nanoparticle-nanostructured material composite obtained by that method are disclosed hereinbelow. Applying the methods of this invention, nanoparticles of certain metals, such as but not limited to Au, Ag, Cu, Pd,and Pt, their alloys and compounds, can be controllably synthesized on the surfaces of nanostructured, porous void-column films by exposure of this material to the salt solutions of these metals. These composite nanoparticle~~/~~ (in one embodiment, void-column film) film substrates have been found to yield strong surface plasmon optical absorption and surface enhanced Raman scattering (SERS). Since the method of this invention does not require any reducing agents, coating agents,or catalysts to form the metal nanoparticles, it is very attractive. These particles may be immobilized on the nanostructured material or the material may be used to generate the particles for injection into some fluid flow environment. The metal nanoparticles can be coating-free, immobilized, and disbursed on a surface. The surface may involve anti-reflection systems and reflection coatings for further optical enhancement. The metal nanoparticle creation reaction of this invention is attributed to galvanic displacement, where the film surface itself serves as the reducing agent and electron source for reduction of the metal bearing medium; e.g, a metal salt. In some embodiments of the present invention no HF etching or oxide removal is necessary for nanoparticle forming to occur and, also, no metal coating (catalyst) is needed.

Please replace paragraph starting on line 32 of page 8 and ending on line 35 of page 8 with the following amended paragraph:

The metal nanoparticle formation process on the substrate (in one embodiment, void-column) film has been observed to persist even after oxide passivation, or after dehydrogenation of the nanostructured Si surface.

Please replace paragraph starting on line 29 of page 12 and ending on line 2 of page 13 with the following amended paragraph:

One embodiment of the method of this invention for fabricating a nanoparticle-nanostructured material composite comprises preparing a material with nano-textured ~~topology~~ topography, and contacting this material with a solution. The terms nano-textured and nanostructured are used interchangeably herinbelow to refer to embodiments of materials with nano-textured ~~topology~~ topography. The term nanostructured as used herinbelow refers to the entire range of nano-textured ~~topologies~~ topographies. It should be noted that, although some of the embodiments described below refer to a void-column structure, this invention is not limited to that structure.